



**Governor's STEM Advisory Council
Regional STEM Network Hub
Application**

April 6, 2012

South Central Region

Drake University

Name of proposed requesting entity (or entries as partners):

Drake University

Name and title of primary contact:

Dr. Janet McMahonill, Dean of School of Education

Primary contact address:

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Region:

South Central

Proposed Location:

Located in Des Moines, Drake University is a private, fully accredited, coeducational university offering more than 75 undergraduate majors and many graduate programs in its six colleges and schools - Arts and Sciences, including Fine Arts; Business and Public Administration; Education; Journalism and Mass Communication; Law; and Pharmacy and Health Sciences. Total enrollment for fall 2011 was 5,384 full and part-time students (3,438 undergraduate students and 1,946 Pharmacy, Law, and other graduate students).

According to recent surveys, Drake's approach to educating students continues to earn the University national recognition:

- Drake is in the top ten for "peer assessment" (reputation for academic quality) among the 572 masters' institutions in the nation—U.S. News and World Report.
- Drake ranked no. 7 on the "Great School-Great Values list"—U.S. News and World Report.
- Drake continues to be a top producer of Fulbright Scholars among master's universities nationwide
- The College of Pharmacy and Health Sciences is ranked the #3 private university pharmacy program in the U.S.
- The Actuarial Science program in the College of Business and Public Administration is one of thirteen universities in the United States recognized as a Center of Actuarial Excellence by the Society of Actuaries, the world's largest actuarial professional organization.

The office of the South Central STEM Hub will be located in Cowles Library on Drake's campus. Cowles Library is the largest private academic library in Iowa, providing ready access to a variety of equipment and services. The library was selected for its centralized location on campus, adjacent to the University's technology service center, access to visitor parking, and close proximity to a variety of large and small meeting spaces.

Identify Your Mission:

Drake's mission is to provide an exceptional learning environment that prepares students for meaningful personal lives, professional accomplishments and responsible global citizenship. The Drake experience is distinguished by collaborative learning among students, faculty and staff and by the integration of the liberal arts and sciences with professional preparation.

Drake University's first obligation is to fulfill the promise of the Mission Statement to students, staff, faculty, parents, alumni and the larger community. But in fulfilling that promise, we aspire to do more. We are determined to develop and implement the best practices in student learning and in faculty and staff development in a manner that will enable us to create a truly exceptional learning community—one that will be recognized as a model for the best in higher education.

Likewise, as an institution that has been part of Central Iowa for 131 years, we also pay very careful attention to the challenges facing our state. Contributing to the strength, cultures, and well-being of our community is a responsibility that we take very seriously—it is central to our social compact. Higher education in America is at a watershed moment and Iowa is no exception. In order for Drake University to achieve our aspirations and prepare for the next generation of students, 36.5% of which will come from the state of Iowa, we recognize that education can no longer be "business as usual." As we look to the future, the importance of cultivating interest in STEM fields in our population's youth is increasingly becoming apparent.

To achieve our goals and address the targeted priorities of our state, Drake University has already implemented a renewed commitment to the STEM initiatives. As described in this application, Drake's commitment to STEM programming and community outreach is reflected through a variety of efforts including an investment in our science facilities, increased emphasis on undergraduate research and outreach to K-12 school districts. This application provides just a few examples of Drake's ongoing commitment to our mission, our community, and the ongoing needs of the state of Iowa for science and math professionals.

Identify Support:**DRAKE UNIVERSITY SUPPORT**

Salary & Benefits: Drake University agrees to provide 50% of the salary and fringe benefits (\$40,000) needed to hire a full time STEM Advocate. The Advocate will be included in Drake's comprehensive fringe benefit package, which includes medical insurance, dental benefits, a group life and accidental death plan, long-term disability, FICA and the TIAA-CREF retirement plan. Drake University's federally negotiated facilities and administrative costs will be waived for this initiative.

Facilities, Equipment, & Administrative Support: Drake agrees to provide the STEM Advocate with a furnished office in Cowles Library at the center of campus. Cowles Library is adjacent to our technology service center (Carnegie Hall) where there is a classroom equipped for specialized live or web-based desktop meetings and conferences via Drakes Adobe Connect services. In addition to this private office, the Science Research laboratories in Cline, Fitch, Harvey Ingham and Olin halls will be available for the STEM Advocate to use in convening groups for demonstration spaces for Scalable Projects if appropriate. Technology research can be held in the Dial Center and Carnegie Hall.

Drake also agrees to provide the STEM Advocate with a laptop computer, telephone, drake.edu email address and software, which includes packages such as the Microsoft Office Suite, a Statistical Package, and Blackboard Learning Management System. The STEM Advocate will also be provided with shared access to Drake administrative support services and equipment such as printers and multi-function copying machines that include faxing and scanning capabilities. If needed, Drake can provide checkout of

laptop computers, portable cameras, iPads, or Polycom systems for video conferencing for connecting to the Scalable Projects and other STEM Hubs.

Library Support: The STEM Advocate would have full access to Cowles Library, the largest private academic library in Iowa. The print and digital holdings of the library cover major STEM disciplines and are especially strong in the Sciences, Technology and Pharmaceutical Science. The library provides access to over 140 databases and maintains a cutting edge web site featuring a new discovery service (SuperSearch) that provides for interdisciplinary and in-depth searching of scholarly resources. In addition to full access to the Cowles Library collection, the Advocate would have access to a specialized librarian who would provide direct support for STEM program research.

Technical Support: The STEM Advocate will be provided with computer support when needed by a building-level technical support specialist and the Carnegie Classroom for training. In addition, there is an 800 square-foot Data Center with 24/7 monitoring for environmental, security and power, with power backup that will be useful in the data storage and dissemination of the Scalable Projects identified by the State STEM Council.

Research and Assessment: Faculty members would be available to share and discuss research design, research services and/or project assessment practices with the STEM Advocate. In particular, the following people have agreed to be available as soon as the project is funded: Dr. Robyn Cooper, Director of the Education Doctoral Program; Dr. Kevin Saunders, Director of Academic Assessment; Dr. Susan Fink, Cowles Library staff member.

Fiscal Compliance: Drake's Sponsored Programs Administration provides management, oversight, and support for grant and contract development activities to all academic divisions and administrative offices within the University. This office will manage the project funds to ensure compliance with applicable federal, state, agency and university policies, laws and/or regulations.

Administrative Support: The following administrative individuals have pledged their personal support of the Governor's STEM initiative and will work to ensure the success of its targeted priorities and goals:

Dr. David Maxwell, President
Dr. Susan Wright, Provost
Dr. Joseph Lenz, Dean of the College of Arts and Sciences
Mr. Charles Edwards, Dean of the College of Business and Public Admin
Dr. Raylene Rospond, Dean of the College of Pharmacy and Health Sciences
Dr. Janet McMahonill, Dean of the School of Education and proposal writer
Dr. Rodney Heshaw, Dean of Cowles Library
Dr. Ann Kovalchick, Chief Information Officer
Mr. John Smith, Vice President of Alumni and Development
Dr. Jerrid Kruse, Professor of Science Education
Dr. Maria Valdovinos, Director of Drake University Science Collaborative Initiative
Mr. Chuck Sengstock, Director of Extension Education
Ms. Danette Kenne, Assistant Dean of the College of Business and Public Administration

SOUTH CENTRAL HUB REQUESTED EXPENSES

Salary & Benefits: Funding would be needed to cover the other 50% of the STEM Advocate's salary and fringe benefits. The Advocate will be included in Drake's comprehensive fringe benefit package, which

includes medical insurance, dental benefits, a group life and accidental death plan, long-term disability, FICA and the TIAA-CREF retirement plan.

Stipends: Stipends would be requested for Science, Math, Engineering or Technology experts in cases where special services are required for the purposes of advancing a Scalable Project.

Travel: Travel to local, regional or state meetings with other HUB Advocates, the State STEM Advisory Council or Scalable Project sites.

Printing/Duplication: Major Printing or duplication of curriculum materials from the selected Scalable Projects as they are disseminated throughout the region and state.

Off Campus Rental Costs: Rental costs incurred to conduct meetings off-campus if held in a venue that is not free for educational use.

Meals: For large group meetings or conference events, on or off-campus, additional charges for meals could be incurred.

Participating Organizations:

Drake University will seek participation from one individual from each of the categories outlined in the Regional STEM Network HUBS. In addition, all of the colleges have active National Advisory Committees and partnership groups that are directly involved in our current and future programs. Following is a list of organizations to be included on the STEM Advisory Council and our current relationship with each group:

Area Education Agency: The School of Education at Drake has six field coordinators who work jointly with Area Education Agencies (AEAs) in each of the regions identified as Hubs. The AEAs partner with Drake Extension Education to offer graduate credit to area educators enrolled in professional development courses. The coordinator who works for Drake in the South Central region could become the Advisory Committee Representative or help the STEM Hub Advocate to select the appropriate central Iowa AEA member. Because the six coordinators meet together throughout the year to coordinate Drake offerings, they are in a powerful position to share the Scalable Projects throughout the state

Nonprofit/informal Learning Centers: Through Drake's Service-Learning Program, we currently have 30 community partnerships and connections with the Greater Des Moines Area. Some of our partnerships include Boys and Girls Club of Central Iowa, Gear Up Iowa, United Way of Central Iowa, Everybody Wins! Iowa, Children and Family Urban Ministries, Community Youth Concepts, Habitat for Humanity, Urban Ambassadors and many other non profits in our community. Through Des Moines Public Schools, Children and Family Urban Ministries, Gear Up Iowa, and Boys and Girls Club of Central Iowa, Drake would have the opportunity to support and develop various STEM projects and initiatives. In the spring of 2012 our Senior Capstone Course in Environmental Sciences is developing a service-learning grant funded project to support a summer science camp on Green Initiatives and a Community Garden. A member(s) from the nonprofit and informal learning center community would be invaluable to the STEM Advisory Council.

Community College: Drake has partnered with Des Moines Area Community College (DMACC) and Grand View University on the Des Moines Area Higher Education Consortium that operates the College

Channel television station. Drake also has articulation agreements with DMACC that help students make a seamless transition from a two-year college to the university. Admissions partnership agreements help more students earn a four-year degree and encourage them to live and work in Central Iowa. As a part of this STEM initiative, a member of the DMACC community would be invited to join the STEM Advisory Council. Also, in recent years, Drake and DMACC partnered on a federally funded Teacher Quality Preparation Program to prepare minorities for a teaching degree.

Economic Development/Chamber of Commerce: Drake University is heavily involved with the Greater Des Moines Partnership on many projects and programs. Partnership Chair and CEO of Principal Financial Group, Larry Zimpleman will become Chair of Drake's Board of Trustees in June. Drake President, Dr. David Maxwell, also serves on multiple committees and initiatives of the Greater Des Moines Partnership and the Capital Crossroads initiative. John Smith, Vice President of Alumni and Development, serves on the Partnership's Directors Committee. Through these connections, we will readily find a member of the Partnership to serve on the STEM Advisory Council.

County Extension and Outreach: Drake partners with several extension and outreach organizations and will reach out to an individual to serve on the STEM Advisory Council. As an example, faculty in the College of Arts and Sciences work closely with Joe Sellers, Beef Program Specialist with the Iowa State Extension and Outreach. He has had much experience with faculty and students in the Environmental Science department. An individual from a local extension and outreach organization would be an excellent asset to the Advisory Council.

K-12 Student/Parent and STEM Teacher: The School of Education (SOE) at Drake University has extensive contact with both K-12 student/parents and STEM teachers. Over 2,000 current Iowa teachers, counselors and administrators are graduates of the Drake SOE. Drake School of Education graduates are working in over 60% of the school districts in Iowa. In addition, through the field experience program for undergraduate and graduate students, the SOE has extensive contact with K-12 students and parents, as well as STEM teachers. Through these partnerships and alumni relationships, Dr. Janet McMahon, Dean of the School of Education, will facilitate contact with individuals from these groups.

Business/Industry: Drake has numerous long-standing partnerships with the business community locally and nationally. These organizations range from the financial services sector, including the Principal Financial Group and Wells Fargo; the science and technology sectors, including Pioneer Hi-Bred, Kemin Industries, and Eurofins Scientific; the pharmacy sector, including McKesson Corporation, Walgreens, and Cardinal Health; and multiple other sectors. Ensuring tomorrow's graduates are workforce ready is a common goal Drake shares with all of our corporate partners and we are confident we will readily secure a willing partner to participate on the STEM Advisory Council.

Private College/University: Drake has a strong relationship with Des Moines University (DMU) and would benefit by including someone from their team on the STEM Advisory Council. Des Moines University is a graduate health sciences university offering degree programs in medicine, anatomy, biomedical sciences, podiatric medicine, physician assistant studies, physical therapy, post-professional physical therapy, public health and health care administration, located in Des Moines, Iowa. In collaboration, DMU and Drake offer a 3+3 program, which allows Drake Health Science students into DMU's Doctor of Osteopathic Medicine Program after three years of undergraduate study.

Public University: Drake partners with many public universities. An example of such a partnership is the Iowa NASA EPSCoR Consortium. Participating academic affiliates include Drake, Iowa State University,

University of Iowa, and University of Northern Iowa. In August 2009, the state of Iowa was awarded a three-year grant to fund fellowships and travel grants for researchers in the State of Iowa. The purpose of the travel grant is to: strengthen relationships with NASA or other collaborators; discuss specific concept proposals with NASA or other future funding sources; and/or attend important technical conferences to network with possible collaborators. Continued partnerships with public universities on the STEM Advisory Council will strengthen our already strong relationships.

Local Government (e.g., Elected Official): Drake University has been an integral part of the Des Moines community for 131 years. We serve as both as a major employer (1,200 full and part-time employees) and supporter of the local business community (\$267 million net impact on local consumer spending, attracting 160,000 visitors to the area annually). Drake University plays a key role in supporting the vitality of the Des Moines community and, because of this role, has strong ties with local government officials, including Senator Jack Hatch, City Council Representative Christine Hensley, and Polk County Supervisor Angela Connolly. We are confident a local government official will willingly support the STEM Advisory Council.

Library: The Cowles Library at Drake University has strong relationships with local libraries in Des Moines and would select one of its partnering members to serve on the Regional Advisory Committee under the direction of Dean Rodney Henshaw. Some of the organizations we currently have relationships with include The Iowa Library Association, the Iowa Private Academic Libraries, Polk County Biomedical Consortium, and the Iowa Library Association—Association of College and Research Libraries (ILA/ACCRL).

School Board Member: Drake University has many long-standing relationships with various members of the Des Moines School Board that will be beneficial when a member is invited to join the STEM Advisory Council. As mentioned above, Drake's School of Education has a strong presence in school districts throughout the state. Each year, Dr. Janet McMahon, Dean of the School of Education, is invited to present education research to the Des Moines Public School Board. Connie Boesen, Chair of Des Moines Public School Board, has had a close relationship with Drake University.

Regional Workforce Development: Dr. Robert Stensrud and Dr. Matt Bruinekool, professors in the Counseling and Vocational Rehabilitation in the School of Education, manage five different federal grants from the US Employment and Training Administration and the U.S. Office of Disability Employment Services. They teach graduate level courses for those seeking to become the leaders in the Iowa workforce development sector. Through their contacts, we are confident that we can invite an expert in this field to join the STEM Advisory Council.

In closing, we understand there is a desperate need to prepare more STEM teachers. The School of Education at Drake University is willing to work with the Iowa Department of Education Teacher Certification Division to discuss alternative licensure. Together with state leaders, Drake's professors will work to prepare more highly qualified STEM teachers.

Funding Assistance:

Drake University will cover 50% of the STEM Hub Advocate salary and benefit package (\$40,000) for each of the three years. Initially, these funds will come from the University's operating budget. However, we anticipate reaching out to our donor base to help sustain this project into the future.

We do not envision resource development for the Regional STEM Hub conflicting with our regular

activities. Through its Office of Alumni & Development, Drake University has a strong core team of development professionals assigned to the various colleges and schools and specific regions of the country, as well as dedicated staff members for planned giving and fundraising within the corporate community. In addition, the centralized Office of Sponsored Programs Administration provides Drake University faculty and staff with the services and resources to successfully locate, obtain, and manage research and other private, state, and federal grant funding for research, scholarly and service endeavors. We are confident that we will be able to work successfully through our vast network of relationships, as outlined in the Partnership section of this application, to leverage resources for Scalable Projects as needed.

We understand that the nonprofit community in the state of Iowa competes for limited resources from a finite pool of donors. However, the goals of the STEM Hub initiative and the specific projects and programs of Drake University are separate and therefore, do not directly compete for funding. The support Drake University receives from its constituents are primarily supporting scholarships, University operations, capital projects, and programming specific to higher education. In addition, Iowa's STEM initiative is appealing to a new and different group of stakeholders in local communities and businesses statewide – a new source of funding for Scalable Projects likely not available to Drake University.

Additional Information:

President Maxwell is a member on the Steering Committee overseeing the regional visioning effort, Capital Crossroads: A Vision for Greater Des Moines and Central Iowa. As a member of the team, he has provided input and leadership to the Capital Crossroads project working to align education with business. He will guide and provide input to the overall planning process and serve as an advisor and decision makers on a final Capital Crossroads plans. According to the Capital Crossroads website: "Greater Des Moines and Central Iowa is at an important crossroads. The region has vibrant neighborhoods, a strong business community, dynamic arts and recreational attractions, and a desirable quality of life. But the region also has its challenges. Local leaders feel the time is right to take advantage of opportunities and address challenges through a clear vision and plan for Iowa's capital region. This process, branded Capital Crossroads, has resulted in the development of a new five-year vision strategy for the region." Link: <http://www.capitalcrossroadsvision.com/about.html>

Additionally, President Maxwell is one of 16 members on the Executive Committee that serves as the Board of Directors for the Business-Higher Education Forum (BHEF) and is responsible for approving all major policies and operating plans of the organization. BHEF is the nation's oldest organization of senior business and higher education executives dedicated to advancing innovative solutions to U.S. education and workforce challenges. Composed of Fortune 500 CEOs, prominent college and university presidents, and other leaders, BHEF addresses issues fundamental to our global competitiveness. It does so through two initiatives: The College Readiness, Access, and Success Initiative (CRI), addressing college and work-readiness, access, and success AND The Securing America's Leadership in Science, Technology, Engineering, and Mathematics (STEM) Initiative, promoting America's leadership in STEM. Link: <http://www.bhef.com/solutions/stem/>

Subject Matter Expertise:

COLLEGE OF ARTS AND SCIENCES

The Drake University College of Arts and Sciences houses programs in several core STEM areas, specifically astronomy, biology, biochemistry, cell and molecular biology, chemistry, computer science, environmental science, mathematics, math education, neuroscience, and physics. College programs and faculty actively participate in the Drake University Science Collaborative Initiative (DUSCI). DUSCI

promotes a culture of scholarship among students and faculty in science and mathematics. Consistent with Drake University's mission, DUSCI actively supports collaborative student/faculty research experiences, strives to increase scientific literacy, and provides opportunities to engage the larger community in science and math.

The following are current examples of Drake's current K-12 Educational Outreach Initiatives within the College of Arts & Sciences:

K-12 Educational Outreach Initiatives: Professor Keith Summerville (Environmental Science) and Metro Waste Authority will co-sponsor a weeklong, immersive summer camp in 2012 for high school students to promote interest in STEM disciplines. Professor Summerville and Metro Waste Authority also co-sponsor a weeklong teacher development workshop in the SE Polk district that emphasizes approaches to using outdoor research and inquiry to meet state life science standards. Participants are identified by the SE Polk District Curriculum Coordinator and are restricted to grades 4-8. At the end of this workshop, teachers create a total of 60 unit plans linked to the new Iowa life science standards. These unit plans will be distributed across the SE Polk district at faculty development workshops Fall 2012.

Professors Tim Urness and Eric Manly (Computer Science) are developing a weeklong summer camp in 2012 on iPod/android app development designed for high school students.

Drake Undergraduate Science Collaborative Institute (DUSCI) is hosting a "Wide World of Science" summer camp for middle-school students, designed in particular to promote interest in science in those populations under-represented in STEM fields.

Professor Mark Vitha (Chemistry) receives grant funding from the American Chemical Society to support underrepresented Des Moines area high school students who work in his lab.

Professor Timothy Urness (Computer Science) and Professor Maria Valdovinos (Psychology) have collaborated with Iowa State University to host a STEM Summer 2012 Camp for Middle School Students.

The following are current examples of Drake's Community Outreach / Engagement Initiatives within the College of Arts & Sciences:

Community Outreach/Engagement: The Drake Municipal Observatory is operated jointly by the City of Des Moines and the Department of Physics and Astronomy at Drake University (Professor Charles Nelson, Chair). It is located on the grounds of the Waveland Golf Course and is open to the public during our public night series held each spring, summer and fall on successive Friday nights.

DUSCI has invited high school students from each of the six Des Moines high schools to be our guests at the annual Drake University Conference on Undergraduate Research.

The Chemistry Club sponsors Kids in Chemistry activities on the Drake campus. Upwards of 60 middle school / high school students participate in lab demonstrations that show the importance of chemistry in society. This program has been up and operational for at least 5 years - thus it has reached > 300 students.

Physics department faculty visit Des Moines area high schools, giving physics demonstrations and promoting interest in the study of physics. Faculty also work on the Physics Olympics program that challenges area high school to compete in math and physics problem solving.

The Physics Department sponsors the Drake Physics Prize, a test taken by high school students in Iowa,

Minnesota, Nebraska, South Dakota, and North Dakota. First prize in the test is a full, 4-year tuition scholarship to the Drake Physics and Astronomy department. A second 4-year tuition scholarship is offered to a runner-up (top 50 seniors) based on the academic record of the student, high school teacher and counselor recommendations, and the results of interviews held in April. Approximately 400 students participate each year.

SCHOOL OF EDUCATION

The Drake University School of Education (SOE) is one of the largest programs of its kind in the Midwest. The SOE has approximately 300 undergraduate students majoring in elementary and secondary education, along with more than 700 graduate students working toward masters, specialists and doctoral degrees in education leadership, teaching and learning, counseling, adult learning and organizational performance, and professional development. The school serves over 10,000 extension education students who receive graduate and professional development credit. In addition, the School of Education is home to Head Start, including Early Head Start, is the largest Head Start grantee in the state of Iowa and one of only a few university-based Head Start programs in the nation. Over 2,000 current Iowa teachers, counselors, and administrators are graduates of the Drake School of Education and placed in over 60 percent of Iowa's school districts.

Drake University's School of Education encourages the implementation and use of research based strategies that have the highest probability of improving student achievement by demonstrating to teachers effective ways to teach the content areas of math and science in schools and providing professional development for teachers.

Drake University's School of Education promotes collaboration and the creation of partnerships among schools, colleges and area education agencies to prepare Iowa's future teachers for a deeper understanding of content and pedagogy for teaching science and mathematics and to utilize effective, research based strategies to teach science, and mathematics to diverse learners.

Professors and Administrators in the Drake School of Education already are engaged in STEM initiatives in both K-12 and post secondary education, examples include:

Dr. Jerrid Kruse, Professor of Science Education, is working with the Iowa State Consortium to provide summer science experiences for under-represented middle school students. Dr. Kruse is our newest science professor and holds a joint appointment in the SOE and College of Arts and Sciences. Dr. Kruse collaborates with professors at Iowa State and has served as the editor of the Iowa science education journal. He is active with the Iowa Math and Science Education Partnership.

Dr. Robyn Cooper, Director of the Educational Doctoral Program, has conducted research focused on increasing the involvement and retention of secondary level female students in STEM. Dr. Cooper is a master researcher and can provide expertise in the research design and evaluation of the Scalable Projects pushed forward by the Hub Advocates.

Dr. Tonia Land, Professor of Math Education, has both published and presented curriculum-based activities and resources for pre-service math teachers. Dr. Land is involved with researchers at Iowa State and teaches math and technology education courses in the SOE.

Dr. Robert Stensrud and Dr. Matthew Bruinekool, professors in the Counseling and Vocational Rehabilitation department, manage five different federal grants from the U.S. Department of Education

Employment and Training Administration and the U.S. Department of the Office of Disability Employment Services. They teach graduate level courses for those seeking to become the leaders in the Iowa workforce development sector. Once students finish these Drake programs, they are employed at Iowa Workforce Development and state vocational rehabilitation offices where connections can be made to this project.

Dr. Wade Leuwerke, Professor of Counseling has developed and validated a nation-wide program for assessing the relationship of personal-social skills to various career fields. Guidance counselors and Iowa teachers working to encourage students to enter into STEM disciplines can use this assessment to match student skills to specific jobs in STEM fields.

Mr. Chuck Sengstock manages the Extension Education Division that co-sponsors license renewal courses in the areas of math, science and technology. The AEA partners involved include the Directors of Educational Services/Professional Development from eight of the nine agencies in Iowa. Each year, we co-sponsor over 50 courses to improve the skills of practicing teachers.

Dr. Janet McMahon is the founder of the Iowa Distance Learning Association and currently serves on the Board of Directors of the United States Distance Learning Association. As the Dean of the SOE and someone devoted to quality online learning initiatives, she has supported a wide variety of technology courses offered at Drake for in-service and pre-service teachers.

The on-campus programs and Extension Education services provided by the School of Education have had a major impact on the development of skills for teachers, counselors and school administrators of Iowa. The experience, subject matter expertise and infrastructure that are needed to support the Hub Advocate and disseminate the Scalable Projects are already in place.

COLLEGE OF PHARMACY AND HEALTH SCIENCES

Drake's College of Pharmacy and Health Sciences (CPHS) is ranked 3rd among private institutions in U.S. News & World Report's "America's Best Graduate Schools." CPHS offers two STEM degree programs:

The Bachelor of Science in Health Sciences is a four-year degree program that focuses on developing the knowledge base, skill sets and professional experiences necessary for success in health-science related fields. Students participate in an interdisciplinary curriculum that combines course work in the biomedical, pharmaceutical and clinical sciences, business and health care management, and health behavior. Because many students are drawn to the health care field but are often unsure of which direction may be best for them, this degree exposes them to a wide range of healthcare-related experiences while providing the foundational skills of a liberal education. May 2011 marked the first graduating class for a Bachelor's of Science degree in Health Sciences.

The Doctor of Pharmacy (Pharm.D.) degree program is a six-year degree program that prepares students for community or institutional practice, postgraduate education and the many other practice opportunities available to pharmacists. Students are admitted to the two-year pre-pharmacy program direct from high school and upon completion of established criteria and then may enter the four-year professional program. The pharmacy program of the Drake University College of Pharmacy and Health Sciences is accredited by the Accreditation Council on Pharmacy Education and is a member of the American Association of Colleges of Pharmacy. In addition CPHS offers a joint degree in Doctor of Pharmacy degree and Master of Business Administration. This degree is offered jointly by the College of Pharmacy and Health Sciences and the College of Business and Public Administration. These two

colleges also offer another joint program to receive a Doctor of Pharmacy and a Master of Public Administration. Drake also offers a program leading to the Doctor of Pharmacy degree and Doctor of Jurisprudence degree.

The following are examples of Drake's current STEM related research that is occurring within Drake's College of Pharmacy and Health Sciences:

Pharmacogenomics and Disease Prevention: The College of Pharmacy & Health Sciences received both Department of Health and Human Services and Grow Iowa Values funding for Drake's new Pharmacogenomics and Disease Prevention laboratories. The Pharmacogenomics laboratory is a facility dedicated to training and education in the technical and clinical aspects of personalized medicine.

The recently developed Ellis Disease Prevention Lab has allowed Drake to better disseminate the educational material that is taught to students and the general public with the use of modern technology in the lab. The medical information gained from this equipment tests various wellness screenings such as bone mineral density, cholesterol, body fat, strength and endurance, and various other healthcare and wellness screenings.

Skeletal and Muscular Research: Professor Kimberly Huey received three years of NIH funding to research the decrease in muscular strength in the elderly. With aging there is a significant decrease in muscle strength in the elderly and her research is studying ways to improve muscle function thereby improving quality of life for the elderly and greatly decreasing long-term medical costs.

Community Outreach/Engagement: The CPHS has an extensive experiential education program for student pharmacists. Both faculty and students work in free medical clinics and senior clinics throughout Central Iowa. Besides working in hospitals, chain and community pharmacies across Central Iowa, CPHS also has a presence in area clinics, senior centers, and community access pharmacies that serve low-income and underrepresented populations. Specific to STEM education, the CPHS also offers a free program for high school students who seek to experience the pharmacy profession. In partnership with Walgreen pharmacies and the Des Moines Public Schools GEAR UP Program, the "Discover Drake, Explore Pharmacy Program" provides high school students with the opportunity to learn about career options in pharmacy, Drake University's Doctor of Pharmacy Program, the college application process and interact with current pharmacy students.

COLLEGE OF BUSINESS AND PUBLIC ADMINISTRATION

Drake University's Actuarial Science Program is one of thirteen programs in the United States designated as a Center of Actuarial Excellence (CAE) by the Society of Actuaries (SOA). Most of Drake's actuarial science students major (or have a concentration in) more than just actuarial science. When concentrating in a second area, choices of study include Insurance, Information Systems, Economics, and Mathematics.

Community Outreach/Engagement: Drake recently hosted an Actuarial Science Camp for Women and Minorities. This five-day summer camp focused on the recruitment of women and minorities into the actuarial science profession. The inaugural event was held in partnership with Black Hawk College in Moline, IL and Scott Community College in Bettendorf, Iowa in the summer of 2011.

INFORMATION TECHNOLOGY

Drake's Chief Information Officer, Dr. Ann Kovalchick has a PhD in education. She draws a distinction between the typical industry CIO and the technology discussion of issues that reflect on learning and

social change. In addition to her unique expertise, Dr. Kovalchick is a board member of the Technology Association of Iowa, which will serve as an added resource in assisting the STEM Advocate in disseminating the technology projects in this statewide endeavor.

COWLES LIBRARY

Cowles Library serves as comprehensive information, instructional and community center for Drake University. The Library has received national recognition for its innovative use of digital technology to support access and utilization of scholarly information resources.

Print and digital holdings of the library cover major disciplines, and are especially strong for access to science, technology, Pharmacy and related disciplines. The library provides access to 70,000 e-books, Ebsco Academic Premier, Scopus, and 140 other databases. All resources are available 24/7.

The library maintains a cutting edge website and has implemented a discovery service (SuperSearch) that provides for interdisciplinary and in-depth searching of scholarly resources (<http://library.drake.edu/>). The Library Faculty provides the "Research Guides" service for all major disciplines (<http://researchguides.drake.edu/chemistry>).

The library faculty has developed a model program for integration of information literacy into to the teaching and research pedagogy. An embedded librarian provides direct support for Pharmacy, Health Science and general science programs.

Dean of Cowles Library, Rodney Henshaw, serves on the Advisory Board of Ebsco Inc., a leading global provider of information resources and services. Cowles Library provides space for meetings, workshops, and cultural events and is on call as a resource through its website and "Ask a Librarian" service.

GRANTS/SPONSORED PROGRAMS ADMINISTRATION

Jayne Smith, Director, Drake University's Sponsored Programs Administration, has presented Grant Writing Tips and Strategies Workshops to STEM organizations and groups such as the Iowa Mathematics Association of Two-year Colleges (IMATYC) and the Drake Undergraduate Science Collaborative Institute.

Additional Considerations:

Founded in 1881, Drake University is a private, coeducational school primarily offering undergraduate degrees in health sciences, biology, biochemistry and molecular biology, chemistry, physics, computer science, and mathematics, in addition to several other liberal arts programs. The current undergraduate and graduation registration is about 5,384 students representing 50 states and 54 countries. Drake students are predominantly residents of Midwestern states, with 37% of Drake's undergraduates and 49% of all students from the State of Iowa. Over 50% of Drake's undergraduates remain in the state of Iowa of after graduation.

The Higher Learning Commission accredits Drake University. In 2011, U.S. News and World Report magazine placed Drake University at the 7th position in their "Great Schools, Great Prices" rankings. Drake University climbed to the third position in the overall rankings of 142 Midwest Universities - Master's category published in the 2011 edition of "America's Best Colleges". Among peers, Drake University continues to be ranked No. 2 in reputation for academic quality. Drake University has a very long tradition of academic excellence and is committed to being an integral and aggressive partner in reversing the precipitous decline in the STEM disciplines.

Drake University has a student to faculty ratio of 13:1. In 2010-2011, over 325 students registered for chemistry, biology and health sciences majors, many of them aspiring to pursue a career in the biomedical/health care profession. This trend has continued for the current academic year as well. Depending on the specialty, acceptance rate of Drake graduates to various biomedical professional programs is >60% to 90% of those who apply. First and second year declared majors in Pharmacy and Health Sciences totaled 455. Clearly, Drake has an excellent track record of attracting and training bright young undergraduates. Interestingly, the majority of these students are women, providing us with a unique opportunity to attract more women to careers in sciences and mathematics.

A number of Drake University faculty members participate in the Drake Undergraduate Science Collaborative Institute or DUSCI. Their research topics range from animal behavior to mechanisms of action of nutraceuticals. Many of these faculty members work in collaboration with clinicians as well as basic science researchers in the Des Moines area hospitals and other institutes. Thus, there are multiple opportunities for undergraduate students to work in collaboration with established research scientists who will provide mentorship and guidance to these undergraduate researchers.

Collectively, these factors assure excellent sustainability and success for a Regional HUB STEM program to be located at Drake University.

President David Maxwell and the Senior Advisory Council share great enthusiasm and support for the Iowa STEM HUB initiative. We pledge our commitment to the project and will complete the work that will be needed to disseminate the Scalable Projects identified by the Iowa STEM Advisory Council.

In this information age, in order to innovate, we need intellectually curious people who are educated in the areas of math, science and technology. Our list of participating organizations is a powerful one; yet, only a small portion of those who could be approached for further support. We acknowledge the financial and in-kind contributions we must make for a three-year period. Although not required, professors from various Drake departments stand ready to include the Scalable Projects in research and evaluation to further refine best practices.

We are confident that STEM efforts will remain a major part of the current education reform initiative proposed by Governor Branstad and the leaders of the Iowa House and Senate. Students in our K-12 schools, community colleges and universities have the talent to fuel the Iowa workforce. Now, with our collective efforts, they need the 21st century skills to move our state forward.

President David Maxwell
Provost Susan Wright

Dean's Council Members
Dean Joseph Lenz, Dean of the College of Arts & Sciences
Dean Janet McMahon, School of Education
Dean Raylene Rospond, College of Pharmacy and Health Sciences
Dean Charles Edwards, College of Business and Public Administration
Dean Rodney Henshaw, Cowles Library
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